FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

A. INTRODUCTION TO FOOD SCIENCE

1. **Interpret the interrelationship between food science and nutrition.**
   - Conduct investigations to become familiar with measuring equipment and skills.
   - Compare volume measurements using various types of glassware.
   - Compare masses using electronic and triple-beam balances.
   - Organize data and tables.
   - Identify the elements on the periodic table that are in common foods.

2. **Evaluate how food products and processing have changed over time.**
   - Look at old cookbooks and compare it to present day foods.
   - Interview an older adult to determine the types of fast foods and convenience food they had when they were young.
   - Research food scientist.

3. **Research the benefits of studying food science in a global society.**
   - Survey the origins of fruits and vegetables in the local grocery stores.
   - Create a collage of newspaper articles relating to national and international food supply.
   - Shape the collage like the country of origin.
   - Research the food customs of various religions and share findings

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

B. LABORATORY SAFETY

1. Incorporate safe use of lab equipment.

- Discuss and quiz students on lab safety.
- Prepare first aid supplies, personal and emergency protection equipment or supplies.
- Recognize common laboratory hazards.
- Locate a Materials Safety Data Sheet and/or fire extinguishers.
- Sign Food and Conduct Contract and file the contract.

2. Integrate safe lab techniques and procedures.

- Discuss appropriate use of equipment.
- Demonstrate safe lab techniques and procedures.

3. Implement sanitation practices in the lab.

- Practice aseptic techniques.
- View video on universal precautions.
- View the ServSafe video.
- Sterilize reagents and equipment.

Course Code: 5756

C. ENERGY

1. Explore the types of energy used in the food industry.

- Put different substances in water to determine boiling point.
- Conduct experiments comparing microwave to oven preparation.
- Cook various sizes of foods, e.g., potatoes, to determine cooking times.
- Make ice cream using two plastic bags (ice cream in a bag).

2. Investigate how energy is released and absorbed through physical and chemical changes.

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

D. METABOLISM

1. Compare the relationships between food intake, physical activity, and body weight.

- Keep a food journal to determine the relationship between food intake and the way you feel.
- Keep a physical activity journal to determine the relationship between physical activity
  and the way you feel.
- Keep weekly log of weight to compare weight and food intake.

2. Explain how metabolism relates to caloric need.

- Calculate personal basal metabolic rate (BMR) using a given formula.
- Estimate body composition.
- Plot body mass index.
- Explore the perils of eating disorders.
- Rate different diets for health needs.

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

E. FOOD CHEMISTRY

1. Summarize the properties and uses of water.

- Construct models of water molecules using small gumdrops or jelly beans and toothpicks.
- Perform an experiment on the boiling point of water using various additives.
- Conduct a water taste test (tap water vs bottle.
- Bake cakes using various amounts of water.
- Dehydrate hotdogs to determine water content.

2. Summarize the purpose of carbohydrates in foods.

- Taste different types of sugars and sugar alternatives to rank sweetness and solubility (fondants, fudge, etc.).
- Do experiments with a number of different foods to show starch content.
- Collect 10 labels from 10 food items and graph carbohydrate content.
- Cook pasta with various amounts of water to determine length of cooking time.

3. Summarize the purpose of lipids in foods.

- Collect 10 labels from 10 food items and graph fat content
- Taste test between different levels of fats.
- Survey margarine labels to determine type of fats used in the products.
- Compare by substituting products for lipids (yogurt, sour cream, applesauce, puree prune, egg whites).

.

4. Summarize the purpose of protein in foods.

- Collect 10 labels from 10 food items and graph protein content.
- Use egg foam to show denaturization of protein.
- Sensory evaluation of products made with animal proteins or alternatives.
- Expand the effects of heat and acid on milk or other protein in products.

5. Summarize enzyme reactions in foods.

- Taste baby food, clean spoon off with your mouth, and stick spoon back in baby food to see the food breakdown.
- Use raw potato or pineapple to determine heating point the catalyst is destroyed.
- Illustrate how digestive enzymes work throughout the body (mouth, stomach, intestines).

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

6. Identify the properties of minerals and vitamins in foods.

- Collect 10 labels from 10 food items and graph mineral and vitamin content.
- Use magnet to test foods for iron.
- Compare the solubility of vitamins (water, fat).
- Identify cooking methods used to retain nutrients.

7. Justify the use of additives in foods.

- Research enrichments and fortification of foods as related to health.
- Chart the comparison of different purposes of additives in foods (preserve quality, enhance sensory, or control consistency).

8. Summarize the purpose of acids and bases in foods.

- **Conduct a ph test on common kitchen ingredients.**
- Test the ph of your saliva.
- Evaluate the effect of chemical leavening agents.

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

F. FOOD MICROBIOLOGY

1. Discriminate among yeast, bacteria, and mold.

- Compare and contrast microbes.
- Compare the effects of ingredients on the growth of yeast.

2. Investigate the basic conditions that promote bacterial growth.

- Conduct and experiment on agar using various bacteria in varying conditions.

3. Specify the process for making cultured foods (i.e. dairy foods).

- Relate the economic impact of food spoilage in underdeveloped countries.
- Conduct an experiment-making yogurt (lactic acid bacteria).

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

G. FOOD PROCESSING AND PRESERVATION

1. Analyze food-processing methods.

- Construct a model of how the various forms of food preservation interrelate.

2. Explain the role of preservatives.

- Compare homemade products with commercial products (i. e. bread)
- Compare pickled products to fresh products.
- Compare different preservation methods.

3. Explain the importance of packaging and processing in protecting the quality and safety of foods.

- Compare different packaging for refrigeration, freezing, and dry storage.

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

H. FOOD SAFETY

1. Summarize information regarding food borne illnesses as a health issue for individuals and families.

2. Relate the risks and/or threats to our nation's food supply.

- Debate the risks and benefits of using pesticides to produce foods.
- Recommend potential remedies for those threats/risks.
- Research and present examples of emerging technology in food processing (vacuum packaging and UHT milk).
- Visit website for the center for disease control.
- Construct a chart of food safety from the farm to the table.

FOOD SCIENCE AND DIETETICS 1
(FOOD SCIENCE TECHNOLOGY AND NUTRITION 1)
ACTIVITIES

Course Code: 5756

I. CAREERS IN FOOD SCIENCE

1. Describe career paths within food science and nutrition.

- Organize a chart depicting career opportunities in food science and nutrition.